

WHAT IS CLAIMED IS:

1. A switch of a network for switching data comprising:

a fabric for switching the data;

a connection mechanism connected to the fabric for providing data to and from the fabric;

a first port card which receives data at a first rate from the network or sends data at the first rate to the network, the first port card connected to the connection mechanism to send data to or receive the data from the fabric at a connection rate; and

a second port card which receives data at a second rate from the network or sends data at the second rate to the network, the second port card connected to the connection mechanism to send data to or receive data from the fabric at the connection rate, the second port card separating the data received at the second rate into streams of data that together equal the data received at the second port card that are sent concurrently at the connection rate to the fabric and combine the data streams received at the connection rate into data that is sent at the second rate to the network.

2. A switch as described in Claim 1 wherein the connection rate equals the first rate and the second rate is equal to N times the first rate, where N is an integer greater than or equal to 2, and there are N streams.

3. A switch as described in Claim 2 wherein the connection mechanism includes a backplane bus that connects the first port card and the second port card to the fabric.

4. A switch as described in Claim 3 wherein the second port card maps the data received at the second rate onto the bus in interleaved fashion.

5. A system as described in Claim 4 wherein the second port card maps the data received at the second rate onto the bus in 4 bit interleaved fashion, and N equals 4.

6. A switch as described in Claim 5 wherein the first port card has a first stiper which takes the data it receives and sends it on the backplane bus as an OC48 data pipe to the fabric, and the second port card has a second stiper which takes the data it receives and sends it as 4 OC48 data pipes to the fabric.

7. A switch as described in Claim 6 wherein the first port card has a first unstiper which receives data from the fabric on an OC48 data pipe and the second port card has a second unstiper which receives data from the fabric on 4 OC48 data pipes and concatenates the 4 OC48 data pipes to form 1 wide data bus to send the data as OC192 data to the network.

8. A switch as described in Claim 7 wherein the first and second stiper stripe data they receive on a 48 bit basis to the fabric.

9. A switch as described in Claim 8 wherein the first and second stripers stripe data so the data does not exceed a 12 bit boundary.

10. A switch as described in Claim 9 wherein the fabric has an aggregator which receives data from the first and second stripers, and a separator which sends data from the fabric to the first unstriper and the second unstriper.

~~11. A method for switching data in a network comprising the steps of:~~

receiving data at a first rate from the network at a first port card of a switch;

receiving data at a second rate from the network at a second port card of the switch;

sending data from the first port card to a fabric of the switch to a connection mechanism of the switch at a connection rate;

separating the data received at the second rate at the second port card into streams of data that together equal the data received at the second port card; and

sending concurrently at the connection rate to the fabric from the second port card the stream of data along the connection mechanism.

12. A method as described in Claim 11 wherein the connection rate equals the first rate and the second rate is equal to N times the first rate, where N is an integer greater than or equal to 2, and there are N streams.

13. A method as described in Claim 12 wherein the connection mechanism includes a backplane bus that connects the first port card and the second port card to the fabric.

14. A method as described in Claim 13 wherein the sending concurrently step includes the step of mapping with the second port card the data received at the second rate onto the bus in interleaved fashion.

15. A method as described in Claim 14 wherein the mapping step includes the step of mapping with the second port card the data received at the second rate onto the bus in 4 bit interleaved fashion, and N equals 4.

16. A method as described in Claim 15 wherein the first port card has a first striper and the second port card has a second striper, and wherein the sending data from the first port card step includes the step of sending the data on the backplane bus with the first striper as an OC482 data pipe to the fabric and the mapping step includes the step of sending the data received by the second striper as 4 OC48 data pipes on the backplane bus to the fabric.

17. A method as described in Claim 16 wherein the first port card has a first unstriper and the second port card has a second unstriper, and including after the sending the data by the second striper step, there are the steps and of receiving data from

the fabric on an OC48 data pipe at the first port card, receiving data from the fabric on 4 OC48 data pipes at the second port card, and concatenating the 4 OC48 data pipes to form 1 wide data bus to send the data as OC192 data to the network by the second port card.

18. A method as described in Claim 17 wherein the first port card sending step includes the step of striping data with the first stiper on a 48 bit basis to the fabric, and the second port card sending step includes the step of striping data with the second stiper on a 48 bit basis to the fabric through the bus.

19. A method as described in Claim 18 wherein the first stiper sending step includes the step of striping data to the fabric through the bus so the data does not exceed a 12 bit boundary, and the second stiper sending step includes the step of striping data to the fabric through the bus so the data does not exceed a 12 bit boundary.